represented embodiment, the angle is 45°. It is also contemplated, however, to choose any other angle that is less than 90° in order to obtain the flow running transverse to the radial flow.

During the operation of the previously described rinsing and drying device 1, the substrate carrier 3 holding the wafer 2 is moved first into a processing position over the device. Subsequently, a rinsing liquid, such as water, is lead via the centrally arranged nozzle 38 onto the semi-conductor wafer 2. The stream is deflected on the wafer 2 at an angle of 90° and forms a uniform, radial outwardly flowing water layer on the wafer 2 (see arrow 40 in Fig. 3). Simultaneously, a gas, such as N_2 or CDA (that is, clean, dry air) is lead through the nozzles 18 tangential to the radially flowing water layer (see arrows 42 in Fig. 3). Through the radial flow of the water in cooperation with the tangential flow of the gas, a spiral shaped, outwardly directed flow is produced (see arrows 44 in Fig. 3). Through the gas mixture, the pitch of the spiral construction can be changed and the rinsing process optimally adjusted. An optimization of the rinsing process can also result through an adjustment of the distance between the wafer 2 and the nozzle plate 17.

With a subsequent drying procedure, a vacuum is applied via the connector 36 onto the central nozzle 38. Additionally, gas is conducted through the nozzles 18. A vacuum is applied to the central nozzle 38, so that none of the water drops which have adhered in the

lines leak through the nozzle 38. In doing so, the vacuum on the central nozzle 38 is just strong enough to counteract a vacuum which is applied from the outside by the gas flow through the nozzles 18 to the nozzle 38. The vacuum from the interior applied vacuum is not strong enough, however, to operate a substantial flow of the gases ejected from the nozzles 18 to the nozzle 38. The gas flow through the nozzle 18 produces turbulence in the area of the nozzle 38, so that a drying of the overlying substrate also results. Through the flux of the gases and the distance between the substrate 2 and the nozzle plate 17, the drying process can be optimally adjusted. After subsequent drying, the upper portion 5 of the substrate carrier 3 is lifted up in order to grasp and free the wafer 2 from the lower portion 6. In this position, the wafer 2 can be removed from the substrate carrier 3 by a manipulation robot and be replaced by a new, untreated substrate. The substrate carrier 3 is again closed and is ready for a new treatment.

Fig. 5 shows a further embodiment of the present invention, which is similar to the first described embodiment. In Fig. 5, the same reference numerals are used, to the extent possible, as with the previously described embodiment of Figs. 1 through 4.

The rinsing and drying device according to Fig. 5 differs from the previously described embodiment in that on an outer edge of the annular element 11, an overflow collar 50 is provided, which can either be formed as one-piece with the annular member 11 or as a separate

component, which is connected with the annular member 11 in a suitable manner. In the overflow collar, a controllable outlet 52 is formed for draining off processing fluid.

Between an inner side of the overflow collar 50, an upper side of the annular member 11, and an outer side of the flange 14, an upwardly opening annular chamber is formed into which the lower portion 6 of the substrate carrier 3 can be guided, as shown in Fig. 5. In the position shown in Fig. 5, a flow channel is formed between the substrate carrier and the base 10. This flow channel extends also between an inner side of the overflow collar and an outer side of the substrate carrier, in particular, an outer side of the lower portion 6. Inwardly directed nozzles, which slant upwardly, are provided in the overflow collar 50, through which a fluid, for example a rinsing liquid or a drying gas, can be led to the flow channel between the overflow collar and the substrate carrier. The number and the orientation of the nozzles 55 in the overflow collar 50 can be adjusted accordingly to the respective need. For example, a single, inwardly directed nozzle could be provided. Also, it is not necessary that the nozzles be formed in the overflow collar, since they also can be separately constructed and secured to the overflow collar.

The operation of the rinsing and drying device according to the second embodiment is essentially identical to the operation of the rinsing and drying device of the first embodiment. However, the flow of